Effectiveness of English Reading Development Using Computer Assisted Instruction on COVID-19 Prevention for Grade 10 Students of Ummaoprachasan School in Nakhon Phanom

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Abstract

This thesis has three objectives: 1. to analyze the effectiveness of English reading development of students at grade 10 before and after using Computer Assisted Instruction on COVID-19 prevention, 2. to develop and validate Computer Assisted Instruction on COVID-19 prevention for students at grade 10 in Ummaoprachasan School Nakhon Phanom, and 3) to study the opinions of students at grade 10 in Ummaoprachasan School Nakhon Phanom after using Computer Assisted Instruction on COVID-19 prevention. The target groups of this study were 30 students at grade 10 in Ummaoprachasan Schoo, Nakhon Phanom, Thailand who were selected to participate in this study conducted in the second semester academic year 2021. The research instruments used were 1) Computer-assisted instruction lessons, 2) Computer Assisted Instruction media quality assessment forms for development through CAI lessons, and 3) a questionnaire to examine the opinions toward learned reading English about COVID-19 prevention through CAI lessons. The statistics program was run by the Microsoft Excel 2013 program for windows, analyzed mean ($\bar{x}$), S.D. and a t-test (dependent sample) were adopted to evaluate the difference between the students' learning result through CAI lessons. Mean ($\bar{x}$) and S.D. were also used to interpret the results from the quality assessment forms and the questionnaire. The results of the study revealed that 1) post-test scores were higher than pre-test scores. Additionally, the post-test mean scores of the experimental group were 26.37. There was statistically significant difference of the post-test mean scores experiment group at .05 level of significance, 2) the overall

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answering to quality assessment form level was at a very level by mean (($\bar{x}$)= 4.18), and 3) the overall opinions at a very level by mean (($\bar{x}$)= 4.23).

Keywords: Computer Assisted Instruction; CAI; quality assessment; English reading effectiveness.

Introduction

Computer Assisted Instruction: CAI has been around for over four decades, but it was not widely used until personal computers arrived. CAI began to invade the workplace when networked personal computers became widespread in the late 1980s. In the early 90s, CAI was an alternative method of training in Traditional classrooms are run by big businesses with strong teaching budgets. But it is still imperative that small and medium-sized employers find effective ways to deliver effective and affordable teaching to their students.

CAI can benefit human resources by opening up essential training topics for career advancement and providing new skills in using technology in the learning process.

Initially, the use of CAI to enhance traditional teaching was a novel concept. However, increasing pressures at all levels of education perpetuated a need for time-efficient, effective teaching modalities that maintained the quality of teaching. CAI was considered to be a viable solution to these problems.

The outbreak of the coronavirus 2019 or COVID-19 started at the end of 2019 and has spread all over the world causing fear and affecting the health, society, and economy of the population, and at the beginning of January 2020, there was a pandemic, which is a rapidly spreading infection around the world, according to the World Health Organization announced on 11 March 2020 (Department of DiseaseControl). Ministry of Public Health, (2020) for the outbreak of the COVID-19 virus. In the first round in Thailand, the first suspected case was found on January 21, 2020, but the outbreak in Thailand continues and affects the lives of the people because it causes social, economic changes and the use of technologies. These have an impact on all individuals such as unemployment or layoffs. Family members must stay away and social distancing as well as reduced family and community relations, they must change the way of life, and there was a problem of lack of income and daily life that had to be adjusted.

The researcher saw that studying the situation of the COVID-19 outbreak and learning how to prevent it. It is helpful for students to apply it in the current situation. Therefore, the researcher has to wish to study the content in English. Therefore, the researcher wishes to teach the content of COVID-19 prevention in English. By using computer-assisted teaching because it is a teaching medium that can increase study motivation. After all, the students are involved in the learning process that makes the students enthusiastic, helping to create a good atmosphere for teaching and learning.

Now there are many problems in reading teaching at student grade 10 at Ummaoprachasan School of the reading motivation because the content of the lesson is not interesting, it addresses the important problems in teaching English reading skills. Problems related to lesson content because the content in the textbook is difficult and inappropriate with the current situation, in addition, the content is still far away. The learner does not have a good knowledge base and does not understand the culture of native speakers. Causing students does not be interested in the subject matter as they should be. Therefore, the arrangement of suitable lessons for the learners' abilities will make the learners interested in what they are learning. Helping learners create interest in reading is the most important thing for achieving English language learning more efficiency.

Therefore, the researcher leads the teaching English reading on the prevention of COVID-19 has been brought to teach students at Ummaoprachasan school by creating CAI which uses lessons that have been successfully completed and have been reviewed by experts to teach students to be able to read understand the passages that are easier to read and faster and presenting lessons on a computer screen with images, light, colors, and sounds will be a great motivator for students and the researcher believed that the teaching using CAI lessons will be one way to help solve problems in reading English. It helps to encourage students to develop more reading and is another way to motivate students to study English. Therefore, the researcher was interested in experimenting with CAI to study the development of English reading comprehension of students at grade 10 in Ummaoprachasan school, Nakhon Phanom province, and semester the second in academic year 2021. The results from the experiment will be a guideline for correction, improvement, and development of teaching and learning materials in the future.

Research Objectives

1. To analyze the effectiveness of English Reading Development of students at grade 10 before and after using CAI on COVID-19 prevention.

2. To develop and validate CAI on COVID-19 prevention for students at grade 10 of Ummaoprachasan school in Nakhon Phanom.

3. To study the opinions of students at grade 10 of Ummaoprachasan school in Nakhon Phanom after using CAI on COVID-19 prevention.

Research Method

Research Design

This research is a quasi-experimental study using, pre-test, and post-test in order to analyze the effectiveness of English reading development before and after using CAI on COVID-19 prevention and the opinions level of the students after using CAI on COVID-19 prevention.

The experimental group took a pre-test in order to range the proficiency of learning. And for the final week of the semester, students took a post-test in order to compare the effectiveness of using CAI lessons. Finally, the students of experimental group did the CAI media quality assessment forms for researchers to develop and validate and do the questionnaire to report their opinions towards learning.

Target Group

1. The population is 90 students at grade 10 in Ummaoprachasan school in the second semester of the academic year 2021.

2. The target group is 30 students at grade 10 in Ummaoprachasan school in the second semester of the academic year 2021, selected from a specific classroom.

Instruments

1. The instruments used in this study including : 1) CAI media quality assessment forms for development, 2) CAI lessons and 3) A questionnaire.

1) CAI media quality assessment forms for development were given to the students to bring their results to develop and validate CAI. The CAI media quality assessment forms for development were given only to the experimental group.

2) CAI lessons were given to the students to learn English reading development on COVID-19 prevention. The CAI lessons were given only to the experimental group.

3) A questionnaire was employed in this study in order to investigate student opinions level towards learning English reading development using CAI on COVID-19 prevention. In addition, the questionnaire was used only for the experimental group. It was designed to see whether the students were satisfied with this type of technology or not.

The manner was divided into 5 rates as follows :

Degree of opinions	Scores
Extremely	4.51 – 5.00
Very	3.51 – 4.50
Fair	2.51 – 3.50
Improvement	1.51 - 2.50
Poor	0.00 – 1.00

The English proficiency ability in COVID-19 prevention tests created both in CAI lessons and the questionnaire were evaluated by three experts in the field for validity and reliability using the "Index of Item-objective Congruence (IOC)" All experts have been English teachers in university level for more than ten years. After the tools were constructed and approved by the experts, the researcher used them with the students.

2. CAI lessons were designed based on PPP Teaching Methodology. 3Ps or PPP is the methodology providing for English as a foreign language teaching. PPP method consists of 3 stages that can be explained as follows;

1) The first stage of "P" is Presentation. In this stage Computer-Assisted Instruction lessons were prepared the information as well as the examples related to the contents they are going to learn.

2) The second stage of "P" is Practice. The students can practice the exercises in both Computer-Assisted Instruction provided by the teacher.

3) The third stage of "P" is Production. In this part the students can produce some important thing to check their understanding. For Computer-Assisted Instruction lessons, students can type the answers into the spaces.

Procedures

The procedure of this research started in January 2022, the second semester of academic year of 2021, after the researcher asked for permission to do the research from the Graduate school, Mahachulalongkornrajavidyalaya University. The Graduate school allowed the researcher to conduct the research. Then, the researcher planned and carried out the research.

The research was carried out according to the following procedures.

1) Target population was selected.

2) The research instruments were constructed and approved by the experts and the thesis advisor.

3) The research instruments were piloted and approved by the researcher.

4) The population was given the pre-test.

5) Two groups of students were selected as the control and the experimental groups.

6) The subjects in the experimental group were explained how to use CAI in week 1.

7) The subjects in the experimental group were taught reading English about COVID-19 prevention by using CAI.

8) After 2 weeks, subjects in both groups took the post-test.

9) The subjects in the experimental group were given CAI media quality assessment forms for development and the opinions questionnaire to respond to.

10) All the research data obtained were analyzed to find out mean scores, the significant difference between the control and experimental groups, mean scores of the opinions questionnaire by using Microsoft Excel 2013 program for windows.

11) The research results were analyzed and discussed.

Data Collection

The data was collected within 2 weeks, from the first week to the last week, by following these activities :

1. The first week of the experiment was spent on class orientation by the teacher (the researcher) asked for permission from the director school to teach online. The teacher (the researcher) introduced the objectives of the study to the subjects and explained how to use CAl lessons. Students did a pre-test of reading English about COVID-19 prevention. And Students began learning from chapters 1 to 4 by lessons per day.

2. In week 2 of the experiment, students learned reading English about COVID-19 prevention through CAI lessons from chapters 5 to 8 by lessons per day and did the final test at the end of the lesson. The teacher collected data on the scores of the tests.

3. In the last week of the experiment, the students took the post-test of reading English about COVID-19 prevention through CAI lessons to see their achievement of learning English through CAI lessons.

4. Finally, the students of experimental group respond the CAI media quality assessment forms for development and the questionnaire on opinions toward reading English about COVID-19 prevention through CAI lessons. All data collected at the first week to the last week, it was analyzed to effectiveness and led to further CAI lessons development.

Data Analysis

The data obtained from the achievement test was analyzed by the Microsoft Excel 2013 program for windows. The findings from the study were presented by mean ($\bar{x}$), standard deviation (S.D.), and t-test (dependent sample).

The data obtained from the questionnaire was analyzed by the Microsoft Excel 2013 program for windows. The findings from the study were presented by frequency, percentage and mean.

Research Results

This section summarizes the objectives of the study and the subjects, materials, and procedures.

1. Objectives of the study

In this study, the objectives were :

1) To analyze the effectiveness of English reading development of students at grade 10 before and after using CAI on COVID-19 prevention. Therefore, the students' learning proficiency was showed to compare in order to see the scores before and after using CAI. The result of the students' pre-test and post-test scores of CAI lessons was showed by pre-test mean ($\bar{x}$) = 15.10, S.D. = 3.16 and post-test mean ($\bar{x}$) = 26.37, S.D.= 2.88. which is consistent with the research Kara and Kahraman examined the effect of CAI on the achievement of students on the instruction of physics topics. The purpose of the study was to investigate the efficacy between the

science class which was taught with the supplement of CAI and traditional instruction. The study consisted of 253 7th grade students, 114 in the experimental group and 139 in the control group. Both groups were given pretest, posttest, and questionnaires in order to balance the groups for the experiment. The experimental group was provided with 3 different types of programs within 4 classes. After the treatment the posttest was given to both groups to measure the achievement scores. There were no significantly different statistics between both groups on pretest scores but the posttest scores in the experimental group were higher than the control group. It can be concluded that CAI has a positive effect on the students' academic achievement.

2) To develop and validate CAI on COVID-19 prevention for students at grade 10 of Ummaoprachasan school in Nakhon Phanom. The result of responding to CAI media quality assessment forms for development was showed by mean ($\bar{x}$) and S.D. The total score of media quality assessment is revealed by mean ($\bar{x}$) at 4.18 and S.D. at 0.17. By the result of media quality assessment means very satisfied which is consistent with the research Olawale Sunday Koledafe, Olafare Festus Oladimeji, and Oyeronke Ogunlade studied the development and validation of a computer-assisted instructional package that was used to teach the concepts of motion in Nigerian Secondary School Physics curriculum. The package was developed on the platform of web2. The developed package was tested to find out if it truly met the objectives expected of it. Considering the opinion of the subject experts, computer experts and educational technologists, the package was assessed using various assessments questionnaire and the results were analyzed using the mean and mean percentage. Based on the findings, the total subject experts' analysis was rated at a mean value of 3.56 and 89.0% which indicated that the package met the objectives of the concepts of motion in Nigerian secondary school syllabus. In the opinion of the educational technologists, the package had a mean value of 4.10 and a percentage value of 81%, which also validated the use of the package as having a good instructional value. The opinion of the computer experts was also valued at 4.37 mean score and 87.4% in their total assessment of the package, this led to the conclusion that the package is a good one for improving the teaching and learning of physics in Nigerian Secondary Schools.

3) To study the opinions of students at grade 10 of Ummaoprachasan school in Nakhon Phanom after using CAI on COVID-19 prevention. The result of learning

opinions was showed by mean ($\bar{x}$) and S.D. The total score of learning opinions is revealed by mean ($\bar{x}$) at 4.23 and S.D. at 0.18. By the result of learning opinions means very satisfied which is consistent with the research Jaruwan Janthong studies a development of computer assisted instruction in fraction for the students in Prathomsuksa 6 have the purpose of the research were to develop the efficient mathematics computer assisted instruction in fraction for the students in prathomsuksa 6 base on the efficiency (70/70)to compare the students achievement after learning with the developed computer assisted instruction and traditional process and study the students' opinion of mathematics learning activities on quadrangles using computer assisted instruction (CAI) The sample consisted of 20 students randomly selected from 32 the students in prathomsuksa 6 of Banthungsay school and the research results of the 3rd objective found that the students expressed a good opinion of mathematics learning activities on quadrangles using computer assisted instruction.

2. Subjects, Material and Procedures

The research subjects for this study were 30 students at grade 10 who studied English in the second semester of the 2021 academic year. The subjects of the study in the classes were mixed between high, moderate and low proficiency in English. In addition, the instruments used in this study including :

1) CAI lessons, 2) CAI media quality assessment forms for development 3) a questionnaire. The students need to learn English reading development on COVID-19 prevention through CAI lessons and do the achievement tests to evaluate their understanding and check their opinions level after learning whether they were satisfied with the method or not. The data was analyzed by mean and standard deviation.

Research Suggestion

Recommendation for further studies

From this research study, the researcher has suggestions that are useful for improvement and development. Next CAI and research lessons are following.

1. From the research results, the efficiency value is very good. It shows that CAI lessons are classified as teaching aids that help encourage learners to develop high reading proficiency in English. Learners are motivated and have good opinions. Therefore, there should be a policy of using computer-assisted teaching materials in

conjunction with teaching English subjects. The weight of the grades obtained from the CAI lessons is given as part of the assessment in addition to the exam and the collection of grades during class. In order to lay the foundation and instill self-learning among the learners.

2. From the research results, it is found that after each chapter, the researcher and students spend some time discussing knowledge and skills in the reading received from teaching that chapter this allows learners to do more tests after studying. Therefore, teachers should discuss with students the reading skills that learners have gained from learning. How can students use it? Therefore, learning from CAI will be more successful.

3. From the results of this research, it was found that using computer lessons as an effective teaching medium helped students to have higher learning abilities. When teachers use computers as a teaching tool but cannot be used as a substitute for teachers Due to the limitation of computers in the field of exchange of ideas and to solve the gap between teachers and students, students with students.

Conclusion

By the study, the researcher investigated the effectiveness of CAI toward using computer-assisted instruction on COVID-19 prevention. To start with the first objective was to analyze the effectiveness of English reading development of students at grade 10 before and after using CAI on COVID-19 prevention. The pre-test results and post-test were very different. By the post-test scores of the students who learned through CAI lessons got higher scores significantly different at .05 level.

The second objective was to develop and validate CAI on COVID-19 prevention for students at grade 10 of Ummaoprachasan school in Nakhon Phanom. The results of the study revealed that the students who responded to quality assessment forms were at the level of very satisfied with this kind of learning material and there are some topics that the researcher should develop further for further teaching.

Finally objective was to study the opinion of students at grade 10 of Ummaoprachasan school in Nakhon Phanom after using CAI on COVID-19 prevention. The results of the study revealed that the students who learned English reading on COVID-19 prevention through CAI lessons were at the level of very satisfied with this kind of learning material.

To sum up, it is proudly recommended that CAI lessons can be the students' facilitator to enhance their learning achievement. It should be used in various classes with other kinds of subjects.

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